

ONLINE COAL ANALYSIS

Purpose Of Coal Analysis

To provide almost instantaneous information on coal properties, mainly ash, moisture, sulfur and other element compositions. (SiO₂, Al₂O₃, Fe₂O₃, CaO, TiO₂, K₂O, N, Cl)

Calculations can also be done on heating value, ash fusion temperature, and Lbs SO₂ per million BTU.

How It Works

Online coal analysis is based on exposing a sample to a field of energy and detecting the resultant emissions. Californium-252 is the most commonly used neutron source for industrial applications of neutron-induced gamma-ray spectroscopy. The half life is 2.6 years so the source would be replenished every 2 ½ years by adding one-half of the original loading.

Would Online Coal Analysis Be Beneficial For IPP?

Analyzing is used to control blending to maximize coal resources, controlling ash fusion temp, and controlling plant performance.

Blending of Westridge coal, which is higher in sulfur, could be maximized so that sulfur loading could be controlled at the AQCS scrubber modules. Controlling inlet sulfur control would allow the scrubbers to be able to perform at a level where there would be no concern about our ability to maintain within current SO₂ discharge limits. Would also be beneficial for future use if lower limits on SO₂ are set.

Lower BTU coal could be blended in at a controlled rate to allow maximum use of the lower BTU coal without causing boiler upsets due to the coal pulverizers being loaded up. Proper BTU blending would allow a better control range on the pulverizers and help keep the units stable.

Powder River Basin coal, which is lower in cost, but if burned in to high of quantities, will cause boiler slagging, could be blended in at a controlled rate to get maximum benefit of the lower cost without causing boiler slagging.

If high ash coal is brought onsite it could be blended at a controlled rate. Controlling ash content would have the benefit of lowering pulverizer wear and loading.

If the coal is blended at a consistent rate burner tuning could be done that would maximize boiler efficiency. Improved ash quality and lower LOIs would be a good side benefit of having the capability of blending coal. Lower LOIs equate to better combustion, which means improved boiler efficiency. Improved ash quality equates to more usable ash to be sold.

Addition of Unit Three

We will require the ability to blend and be able to convey coal to any unit at any given time. With an analyzer we can be assured that the appropriate blends will be sent to the proper unit. This will allow more flexibility in buying and blending of our coal.

Cost

A PGNA (Prompt Gamma Neutron Activation Analysis) monitoring system would cost approx. \$400,000.00. The sampler, which will fit over a 60" belt is \$265,000. Software for an automated blending system is \$5,000.00. Optional Moisture monitor is \$45,000.00. Installation is approx 35-50,000.00. Engineer on site for calibration and setup for 6 days is \$27,000.00.